

Evaluation of the Physical Hazards Associated with Two Remedial Alternatives at a Superfund Site

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This study presents an evaluation of the risks due to the physical hazards associated with two remedial alternatives for a former chemical manufacturing facility in New Jersey. Both the on-site and off-site risk of work-related fatalities during remedy implementation and the risks of accident or accident-related fatalities during the off-site transport of site-related materials were evaluated. The two remedial alternatives evaluated were on-site containment and excavation with off-site incineration. The risk of at least one fatality due to a work-related accident was estimated for on-site activities associated with each remedial alternative, and for off-site incineration. The risks of at least one accident and of one accident-related fatality were calculated with accident and fatality data from the U.S. Department of Transportation. In addition, the risk of at least one accident that might potentially affect a natural resource (e.g., river, lake, or national park) was evaluated. This evaluation indicates that the risk of a work-related fatality is over an order of magnitude higher, and the risk of an accident or accident-related fatality is over three orders of magnitude higher, for the excavation/off-site incineration remedial alternative than for the on-site containment alternative. Overall, this study indicates that the physical hazards associated with excavation and off-site incineration are much greater than those associated with on-site containment for this site. Therefore, if a choice between the two remedial alternatives were to be made based solely on physical hazards and accident risk, the on-site containment alternative would be more protective of human health and the environment than the excavation/off-site incineration alternative.

KEY WORDS: Physical hazard; work-related fatality; accident risk; evaluation of remedial alternatives